

**Mathematical Modeling of Hydrodynamic Motion
in the Reactor with Ferromagnetic Particles
in the Process of Bio-Fuel Synthesis**

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Key words and phrases: Ampere–Maxwell equation; equation of electromagnetic hydrodynamic; vortex layer of ferromagnetic particles; mathematical model.

Abstract: The paper presents the mathematical model of hydro- and electro-dynamics in the reactor with the layer of ferromagnetic particles. The mathematical model includes the equations of the electromagnetic hydrodynamics of the treated environment and Ampere–Maxwell equation for the description of the electromagnetic field in the reactor.